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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jae-Gyeong Suh

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EXAMINER

WHIPKEY, JASON T

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/829,422	Applicant(s) SUH, JAE-GYEONG	
	Examiner Jason T. Whipkey	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7,8,10-13,17-19 and 21-25 is/are rejected.
- 7) ☒ Claim(s) 3,5,6,9,14-16 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because Figure 9 includes the reference character 9. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, Applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 25 is objected to as failing to comply with 37 CFR 1.75(a) for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claim 25 recites the limitation “the driving motor” on line 4. There is insufficient antecedent basis for this limitation in the claim, as the driving motor is not introduced until line 8.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 8, 11, 13, 17, 19, and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwasaki (U.S. Patent Application Publication No. 2004/0130803).

Regarding **claim 1**, Iwasaki discloses a zoom camera (see paragraph 2) for use with an electronic device (see Figure 3), comprising:

a base member (base 1; see Figure 3) having an image sensor (see paragraph 2; it is inherent that a digital camera includes an image sensor) coupled thereto;

a guide cylinder member (fixing cylinder 4) including at least two groups of linear guide grooves (4a and 4b; pairs are shown in Figure 3) formed in a lengthwise direction of the guide cylinder member (see paragraph 37);

a driving motor (DC motor 7) for providing a rotational force (see paragraph 34);

a cam barrel (cam cylinder 5) coupled to an outer circumference of the guide cylinder member (see paragraph 34) and including at least two groups of cam slots (5a and 5b; pairs are shown in Figure 3) formed therein (see paragraph 35), the cam barrel and the guide cylinder member adapted to provide a relative rotation with respect to each other in response to the rotational force of the driving motor (see paragraph 40);

at least two lens frames (first moving cylinder 20 and second moving cylinder 30) each having at least two linear guide portions (bosses Ba) radially extending outwards and respectively inserted in the corresponding linear guides grooves of the guide cylinder member for guiding the lens frames thereby (see paragraph 37), the lens frames having a plurality of cam pins (cam followers 8 and 9) radially extending outwards from the linear guide portions and respectively inserted in the corresponding cam slots of the cam barrel for guiding movement of the lens frames (see paragraph 38);

at least two lenses (first group lens system 2 and second group lens system 3) respectively fixed in the corresponding lens frames (see paragraph 38); and

a connector for connecting the zoom camera (see paragraph 2) to the electronic device (inherent for communication to occur between the camera and device or for the device to receive power).

Regarding **claim 2**, Iwasaki discloses:

the driving motor is a DC driving motor (see paragraph 33).

Regarding **claim 8**, Iwasaki discloses a gear train (reduction gear array 17) coupled to the base member (see Figure 2), wherein the gear train comprises:

a motor gear connected to a rotation shaft of the driving motor (it is inherent that the motor includes a gear in order for it to turn reduction gear array 17);

at least one reduction gear to reduce the rotation speed of the driving motor (part 17 is named a reduction gear array, which would inherently include at least one reduction gear); and

a transmission gear engaged with the at least one reduction gear and configured to rotate the cam barrel (the device consists of an array of gears; it is inherent that a gear connects a reduction gear to the cam barrel).

Regarding **claim 11**, Iwasaki discloses:

the base member includes a module base (shown at the top of Figure 2) and a lens guide base (shown at the bottom of Figure 2).

Regarding **claim 13**, Iwasaki discloses:

a gear train (reduction gear array 17) coupled to the module base for rotating the cam barrel (see paragraph 34).

Regarding **claim 17**, Iwasaki discloses:

the guide cylinder member is stationary and the cam barrel is rotatable relative to the guide cylinder member (see paragraph 34).

Regarding **claim 19**, Iwasaki discloses:

the base member includes a motor installation portion and the driving motor is mounted on the motor installation portion (see Figure 1).

Regarding **claim 21**, Iwasaki discloses:

the zoom camera has three lenses fixed in the corresponding lens frames (as stated in paragraph 38, the system includes a first *group* lens system 2 and second *group* lens system 3, indicating that a plurality of lenses are present).

Claims 22 and 23 can be treated like claim 1. Note that the preambles of these claims have no patentable weight.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4, 7, 10, 12, 18, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki.

Claim 4 can be treated like claim 1. However, Iwasaki is silent with regard to the guide cylinder grooves being formed at an interval of 120°.

Official Notice is taken that a number of configurations of the cylinder's grooves are possible. Applicant's specification does not disclose the criticality of the 120° limitation.

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Additionally, there are a finite number of groove configurations, where there exists a reasonable expectation of success in many of them. For these reasons, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Iwasaki's system form the guide cylinder grooves at an interval of 120°.

Claim 7 can be treated like claim 1. However, Iwasaki is silent with regard to having lens shields fixed on the lenses.

Official Notice is taken that it was well known in the art at the time the invention was made to attach lens shields to lenses. An advantage of doing so is that replacement due to damage is less likely, thus decreasing cost of ownership. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Iwasaki's system include lens shields.

Claim 10 can be treated like claim 1. However, Iwasaki is silent with regard to including a filter on the front of the image sensor.

Official Notice is taken that it was well known in the art at the time the invention was made to include a filter on the front of an image sensor. An advantage of doing so is that a higher-quality picture would be produced. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Iwasaki's system include a filter on the front of the image sensor.

Claim 12 can be treated like claim 1. However, Iwasaki is silent with regard to including the image sensor on a PCB.

Official Notice is taken that it was well known in the art at the time the invention was made to include an image sensor on a PCB. An advantage of doing so is that a connection can

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be established with processing circuitry while maintaining the image sensor in a desired position. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Iwasaki's system place the image sensor on a PCB.

Claim 18 can be treated like claim 1. However, Iwasaki is silent with regard to including a motor-driving IC for driving the driving motor.

Official Notice is taken that it was well known in the art at the time the invention was made to include an integrated circuit for driving a motor that drives a zoom lens. An advantage of doing so is that complex, intelligent control of the zoom lens can be effected. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made for Iwasaki to include a motor-driving IC.

Claim 24 can be treated like a combination of claims 1 and 10.

Claim 25 can be treated like a combination of claims 1 and 18.

Allowable Subject Matter

7. Claims 3, 5, 6, 9, 14-16, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claim 3**, no prior art could be located that teaches or fairly suggests a zoom camera including a base member, a guide cylinder member with two groups of linear guide grooves, a driving motor, a cam barrel coupled to an outer circumference of the guide cylinder member with at least two groups of cam slots, at least two lens frames inserted in the linear guide

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grooves, wherein the driving motor has a voltage signal waveform applied having a portion for applying the power and not applying the power, wherein the power is applied within a time limit for moving the lenses between a telezoom position and a wide zoom position.

Regarding **claim 5**, no prior art could be located that teaches or fairly suggests a zoom camera including a base member, a guide cylinder member with two groups of linear guide grooves, a driving motor, a cam barrel coupled to an outer circumference of the guide cylinder member with three groups of cam slots, at least two lens frames inserted in the linear guide grooves, wherein two groups of the cam slots are oppositely inclined and the other group having a chevron shape.

Regarding **claim 6**, no prior art could be located that teaches or fairly suggests a zoom camera including a base member, a guide cylinder member with two groups of linear guide grooves, a driving motor, a cam barrel coupled to an outer circumference of the guide cylinder member with at least two groups of cam slots, at least two lens frames inserted in the linear guide grooves, wherein each end portion of the cam slots in the tele zoom and wide zoom states has an allowance formed.

Regarding **claims 9, 14, and 15**, no prior art could be located that teaches or fairly suggests a zoom camera including a base member, a guide cylinder member with two groups of linear guide grooves, a driving motor, a cam barrel coupled to an outer circumference of the guide cylinder member with at least two groups of cam slots, at least two lens frames inserted in the linear guide grooves, wherein the gear train is inserted in a groove formed in an upper surface of the base member.

Regarding **claim 16**, no prior art could be located that teaches or fairly suggests a zoom camera including a base member, a guide cylinder member with two groups of linear guide grooves, a driving motor, a cam barrel coupled to an outer circumference of the guide cylinder member with at least two groups of cam slots, at least two lens frames inserted in the linear guide grooves, wherein the lens guide base is disposed above the module base and the guide cylinder member is coupled with the lens guide base.

Regarding **claim 20**, no prior art could be located that teaches or fairly suggests a zoom camera including a base member, a guide cylinder member with two groups of linear guide grooves, a driving motor, a cam barrel coupled to an outer circumference of the guide cylinder member with at least two groups of cam slots, at least two lens frames inserted in the linear guide grooves, wherein the motor installation portion includes at least one protrusion for limiting rotation of the cam barrel beyond a predetermined position.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Whipkey, whose telephone number is (571) 272-7321. The examiner can normally be reached Monday through Friday from 9:30 A.M. to 6 P.M. eastern daylight time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye, can be reached at (571) 272-7372. The fax phone number for the organization where this application is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.T.W./
March 27, 2008

/Lin Ye/
Supervisory Patent Examiner, Art Unit 2622